

## SUMMARY

Based on field collections and a herbarium study, it was shown that at least 40, and probably between 60 and 80 species of annuals could be found at altitudes of 3000 m. and over in the southern Sierra Nevada of California. In a few years (1937, 1942, 1951, 1952) there were an exceptional number of annuals at higher altitudes; this could not be correlated with any meteorological peculiarities in those years.

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## NOTES ON MALVACEAE IV.

## THREE NEW SPECIES AND A NEW COMBINATION

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***Abutilon Carterae*** sp. nov. Planta herbacea, ut videtur annua; caulibus usque 0.5 m. altis, validis, densissime albidolanatis; foliorum laminis usque 20 cm. longis, suborbicularibus, profunde cordatis sinu aperto, subito acuminatis, crenulato-denticulatis, 9-nervatis, valde discoloratis, subtus dense albidotomentosis; petiolis validis, laminam plerumque subaequantibus; stipulis filiformibus, mox caducis; floribus in paniculam terminalem, elongatam, pauciramosam, apertam dispositis; calycibus fructiferis circa 6 mm. longis, circa dimidiam partem fructus aequantibus, tomentosis, lobis deltoideis, acuminatis; petalis circa 8 mm. longis, patentibus, ochroleucis, obovatis, insigniter venosis, androeceum et stylos multo superantibus; staminibus numerosis, tubo brevi confertis; stylis elongatis; stigmatibus parvis, capitatis; fructibus breviter cylindraceis, truncatis; carpellis 8 vel 9, circa 10 mm. longis, breviter aristatis, villosis, loculicidalibus, plerumque 2-spermis; seminibus deltoideo-reniformibus, circa 2.5 mm. longis, minute lineato-stellulatis.

Plant herbaceous, apparently annual; stems tall (0.5 m. or more), stout (5 mm. in diameter near base), densely white-lanate with very short, partly forked hairs; leaf blades up to 20 cm. long and 17 cm. wide, suborbicular, deeply cordate with an open sinus, abruptly acuminate, crenulate-denticulate, sometimes obscurely trilobate, strongly discolorous, dark green and tomentulose with very short, simple and forked hairs above, densely white-tomentose beneath, 9-nerved from the base, the veins somewhat prominent beneath; petioles

stout, often nearly as long as the blades; stipules filiform, soon caducous; inflorescence an elongate, few-branched, open, terminal panicle; fruiting calyx open-campanulate, about 6 mm. high, about half as long as the fruit, rather loosely tomentose, the lobes deltoid, acuminate; petals about 8 mm. long, spreading, light cream in color (collectors' note), obovate, conspicuously veined, much longer than the androecium and styles; stamens many, crowded on the short tube; style branches elongate; stigmas small, capitate; fruit short-cylindric, truncate; carpels 8 or 9, about 10 mm. long, shortly aristate (the awns about 1 mm. long), villous with long, mostly simple hairs, finally dehiscent loculicidally nearly to the base; seeds usually 2 per carpel, deltoid-subreniform, 2.5 mm. long and wide, stellulate-puberulent in irregular lines.

Type. Arroyo de Tabor, Sierra de la Giganta west of Puerto Escondido, Baja California, Mexico, elevation 125 m., growing with *Lysiloma*, *Ulmus*, and *Erythea*, Carter & Kellogg 2871 in 1950 (University of California Herbarium no. 963749; isotype in Herbarium California Academy of Sciences no. 371705). Collected also three years previously in Arroyo Hondo, north side of Cerro de la Giganta, "among loose rocks on canyon side," elevation about 630 m. (Carter, Alexander & Kellogg 2055). The species is known only by these two collections in eastern Baja California between latitudes 26°10' and 25°48'N. All of the specimens have only very mature fruits and a few withered flowers.

*Abutilon Carterae* evidently is related to *A. sonorae* Gray of mainland Mexico and southern Arizona, but differs strikingly in the conspicuously lanate stems devoid of the very long and slender, spreading, simple hairs that are borne on the otherwise merely puberulent to nearly glabrous stems of *A. sonorae*. Also the leaves are more discolorous in *A. Carterae*. They are usually markedly although shallowly trilobate in *A. sonorae*, but there is only an occasional very slight indication of this character in *A. Carterae*.

*Abutilon coahuilae* sp. nov. Planta ut videtur herbacea vel suffrutescens; caulibus erectis, supra ramosis, infra teretibus, apicem versus paulo angulatis; caulibus, foliis, et calycibus densissime pannoso-canescens pilis minutis stellatis; foliorum laminis ovatis, breviter cordatis sinu aperto, gradatim et acute acuminatis, insigniter duplo serrato-dentatis, crassiusculise, base 9-nervatis, reticulatis, nervis subsus elevatis, petiolis laminas subaequantibus; stipulis subulatis, mox caducis; floribus in paniculam terminalem, elongatam, apertam, foliosam, longe-ramosam dispositis; calycibus fructiferis profunde partitis, valde reflexis, fructu cylindraceo brevioribus, lobis ovato-lanceolatis, acuminatis; petalis ut videtur flavis vel aurantiacis, circa 9 mm. longis, obovatis, insigniter venosis,

androecio stylisque longioribus; carpellis 5, triovulatis, maturis circa 10 mm. longis, breviter aristatis, stellato-canescens, loculicidalibus atque demum septicidalibus; seminibus circa 2 mm. longis, obovoideo subreniformibus, pubescentibus.

Plant apparently herbaceous or suffrutescent; stems erect, branching above, terete below, somewhat angulate toward apex; stems, leaves and calyx very densely pannose-canescens with minute stellate hairs, the pubescence yellowish in the dried specimen; leaf blades ovate, shallowly cordate with an open sinus, gradually and sharply acuminate, conspicuously doubly serrate-dentate, thickish, 9-nerved from the base and reticulate, the nerves prominent beneath; petioles nearly as long as the blades; stipules subulate, soon caducous; inflorescence a terminal, elongate, open, leafy, long-branched panicle; fruiting calyx deeply cleft, strongly reflexed, shorter than the cylindrical fruit, the lobes ovate-lanceolate, acuminate; petals apparently yellow or orange, about 9 mm. long, obovate, conspicuously veined, longer than the androecium and styles; carpels 5, triovulate, at maturity about 10 mm. long, shortly aristate (awns 1—1.5 mm. long), stellate-canescens, loculicidally and finally septicidally dehiscent; seeds about 2 mm. long, obovoid-subreniform, pubescent.

Type. Cerro de Santiago near Bolívar, Coahuila, Mexico, *C. A. Purpus 4617* in 1910 (University of California Herbarium no. 144778; isotype, U.S. National Herbarium. The type specimen has excellent fruit but only one withered flower, and does not show the basal part of the plant.

*Abutilon coahuilae* is nearly related to *A. malacum* Wats., less closely to *A. incanum* (Link) Sweet. From both of these species it differs in its more sharply toothed leaves and, especially, in its distinctly aristate (not merely mucronulate) carpels. In the very fine and close pubescence it resembles *A. malacum*, but the latter has broader, mostly suborbicular leaves and a generally more compact inflorescence.

**Pavonia Ulbrichiana** sp. nov. (Section *Eupavonia*). Frutex 1-3 m. altus; ramis juvenilibus, foliis, pedunculis, involucellis et calycibus hirsuto-tomentosis pilis longiusculis; foliorum laminis crassiusculis, paulo discoloribus, late ovatis, acutiusculis, subcordatis, irregulariter duplo dentatis, e base 5-nervatis, nervis subtus elevatis; petiolis validis, quam lamina multo brevioribus; stipulis subulatis, brevibus, hirsutis, mox caducis; floribus in axillis foliorum superiorum solitariis; pedunculis paulo brevibus, validis, apicem versus articulatis; involucelli phyllis 4, distinctis, latissime deltoideo-ovatis, circa 16 mm. longis et latis, cordatis, acutiusculis; calycibus 15-20 mm. longis, campanulatis, profunde partitis, lobis oblongo-ovatis, acutis, plurinervatis; petalis rubris, erectis, externe sparse pubescentibus, circa 4.5 cm. longis, androceo et stylis paulo longioribus; carpellis circa 8 mm. longis, leviter arcuatis, ob-

longis, obtusis, muticis, laevibus, ut videtur omnino dehiscentibus.

Shrub 1-3 m. high (collector's note); young branches leaves, peduncles, involucels, and calyces hirsute-tomentose with rather long, few-armed hairs, the pubescence (in the dried specimen) ferruginous; leaf blades (only the uppermost seen) rather thick, moderately discolorous, up to  $6.5 \times 5$  cm., broadly ovate, subcordate, acutish, irregularly doubly dentate, 5-nerved from the base, the nerves prominent beneath; petioles stout, much shorter than the blades; stipules subulate, short, hirsute, soon caducous; flowers solitary in the axils of the upper leaves; peduncles rather short, stout, articulated near apex; involucel of 4 distinct, very broadly deltoid-ovate, cordate, acutish bractlets, these about 16 mm. long and wide; calyx 15-20 mm. long, campanulate, deeply 5-cleft, the lobes oblong-ovate, acute, several-nerved; corolla red (collector's note), about 4.5 cm. long, funnelform-campanulate, the petals erect, sparsely pubescent externally with hairs like those of the herbage, the petals somewhat longer than the androecium and styles; carpels 8 mm. long, about one-third as wide, oblong, slightly arcuate, obtuse, muticous, smooth, not evidently veined, apparently completely dehiscent.

Type. Maranhão-Pará, Brazil, *Sneathlage* 170 in 1923 (Chicago Natural History Museum no. 693728), the only collection known to the writer.

As a rule, description of a novelty from such scanty material should be avoided, but *Pavonia Ulbrichiana* seems a very distinct species, although evidently related to the Brazilian *P. Garckeana* Güerke. These two species, so far as the writer knows, differ from all other American representatives of the genus in having an involucel of only four bractlets, these broad and cordate. In *P. Garckeana*, however, the leaves are much longer than wide, the hairs of all parts of the plant shorter, the involucel, calyx, and corolla smaller, the calyx lobes narrower (deltoid-lanceolate), and the carpels very different, being only about one-half as long as in *P. Ulbrichiana*, obovoid-trigonus, reticulate-veined and nodulose-tuberculate.

The new species was given a name by the late Prof. Dr. Eberhard Ulbrich of the Berlin-Dahlem Museum, but was not published by him. It is a pleasure to dedicate it to him, in recognition of his outstanding contributions to our knowledge of the Malvaceae.

***Sida pulverulenta*** (Ulbrich) comb. nov. *Abutilon pulverulentum* Ulbr., Engler's Bot. Jahrb. Beibl. 117:51. 1916.

This species is here transferred to *Sida* because Ulbrich described the carpels as "monosperma." A photograph of the type in the herbarium of the Chicago Natural History Museum bears a sketch, presumably made by Ulbrich, showing a solitary, pendulous ovule. The relationship appears to be

with a more or less artificial group of species of Brazil, Paraguay, and northern Argentina, that includes *Sida adscendens* St. Hil., *S. purpurascens* Salzm., and *S. Regnellii* R.E. Fries. All of these, including *S. pulverulenta*, have the petals from white fading pink to rose-violet and fruits of 7 or more mucicous carpels. *Sida pulverulenta* has the largest flowers of the group (petals about 20 mm. long), whereas they are less than 15 mm. long in the other 3 species. *Sida pulverulenta* differs from *S. Regnellii* in the absence of long, simple hairs on the stems and in its broader leaves. From *S. adscendens* and *S. purpurascens* it is distinguished by the more numerous carpels and other characters. The type of *Abutilon pulverulentum* came from near San Miguel, Dep. Cajamarca, Prov. Hualgayoc, Peru (*Weberbauer 3904*).

IDENTITY OF HIBISCUS PULVERULENTUS GRISEB. This plant was described by Grisebach (1879, p. 49) as an *Hibiscus*, although he compared it with *Fugosia phlomidifolia* St. Hil., which is *Cienfuegosia affinis* (H.B.K.) Hochr. Hochreutiner (1902, p. 45) although he had not seen a specimen, concluded that it might well belong to *Hibiscus*, although, in his monograph of that genus (1900, p. 173) he had referred it previously to "*Fugosia pulverulenta*." In her revision of the Argentinian species of *Hibiscus*, Rodrigo (1948, p. 150) accepted Hochreutiner's earlier opinion that this plant is a *Cienfuegosia* although she, too, had seen no specimen. The identity of Grisebach's plant seems now to be established by the discovery, in the University of California Herbarium, of a specimen labelled, in what is probably the handwriting of one of the collectors, "1082 *Hibiscus pulverulentus* Gr. n. sp. Salta Ende Nov. 73 Lorentz et Hieronymus." Although Grisebach (*ibid.*) cited no collectors' number, this specimen may well be an isotype. The plant is evidently a *Cienfuegosia*, and is *C. sulphurea* (St. Hil.) Garcke, according to Rodrigo's key to the Argentinian species (1941, p. 217) and J. B. Hutchinson's key to the genus (1947, p. 126) as a whole.

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